

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Canceled).

2. (Currently Amended) A control system for an internal combustion engine having a variable valve operating mechanism capable of varying at least one of a valve lift and an operation angle of an engine valve continuously, comprising:

a detecting device that detects an operating condition of the variable valve operating mechanism and produces a signal representative thereof; and

a controller that controls the operating condition of the variable valve operating mechanism in response to the signal from the detecting device;

the controller being programmed to determine whether an operation responsiveness of the variable valve operating mechanism is lowered based on the signal from the detecting device and vary operational characteristics of the variable valve operating mechanism when the operation responsiveness of the variable valve operating mechanism is lowered;

wherein the variable valve operating mechanism includes an actuator and a control shaft that is driven by the actuator so as to vary in a rotational angle thereof and thereby variably control one of the valve lift and the operation angle, the controller being programmed to determine whether the operation responsiveness of the variable valve operating mechanism is lowered based on a holding energy of the actuator for holding the control shaft at a target rotational angle when a target rotational angle of the control shaft is held constant for a predetermined period of time.

3. (Original) A control system according to claim 2, wherein the controller is programmed to make a diagnosis of the operation responsiveness of the variable valve operating mechanism during operation of the engine.

4. (Original) A control system according to claim 2, wherein the controller is programmed to make a diagnosis of the operation responsiveness of the variable valve operating mechanism immediately after start of the engine.

5. (Original) A control system according to claim 2, wherein the engine is of an V-type and has the variable valve operating mechanism at each of banks thereof, the controller being programmed to determine whether the operation responsiveness of the variable valve operating mechanism at each of the banks is lowered.

Claims 6.-10. (Canceled).

11. (Original) A control system according to claim 2, further comprising a warning lamp that is turned on when a deterioration parameter indicative of a degree of deterioration of the actuator becomes larger than a predetermined value.

12. (Original) A control system according to claim 2, wherein the variable valve operating mechanism includes an actuator and a control shaft that is driven by the actuator so as to vary in a rotational angle thereof and thereby variably control one of the valve lift and the operation angle, the controller being programmed to limit the rotational angle of the control shaft and thereby make smaller one of the valve lift and the operation angle when the operation responsiveness of the variable valve operating mechanism is lowered.

13. (Original) A control system according to claim 12, wherein limitation of the rotational angle of the control shaft is attained by varying a holding energy of the actuator for holding the control shaft at a target rotational angle.

14. (Original) A control system according to claim 12, wherein the controller is programmed to generate a map for setting a rotational angle limit of the control shaft in accordance with engine speed when the operation responsiveness of the variable valve operating mechanism is lowered.

15. (Currently Amended) A control method for an internal combustion engine having a variable valve operating mechanism capable of varying at least one of a valve lift and an operation angle continuously, the method comprising:

detecting an operating condition of the variable valve operating mechanism and producing a signal representative thereof by means of a detecting device; and

controlling the operating condition of the variable valve operating mechanism in response to the signal from the detecting device;

the controlling including determining whether an operation responsiveness of the variable valve operating mechanism is lowered based on the signal from the detecting device and varying operational characteristics of the variable valve operating mechanism when the operation responsiveness of the variable valve operating mechanism is lowered;

wherein the variable valve operating mechanism includes an actuator and a control shaft that is driven by the actuator so as to vary in a rotational angle thereof and thereby variably control one of the valve lift and the operation angle, and the controlling comprises determining whether the operation responsiveness of the variable valve operating mechanism is lowered based on a holding energy of the actuator for holding the control shaft at a target rotational angle when a

target rotational angle of the control shaft is held constant for a predetermined period of time.

16. (Original) A control method according to claim 15, wherein the controlling comprises making a diagnosis of the operation responsiveness of the variable valve operating mechanism during operation of the engine.

17. (Original) A control method according to claim 15, wherein the controlling comprises making a diagnosis of the operation responsiveness of the variable valve operating mechanism immediately after start of the engine.

18. (Original) A control method according to claim 15, wherein the engine is of an V-type and has the variable valve operating mechanism at each of banks thereof, and the controlling comprises determining whether the operation responsiveness of the variable valve operating mechanism at each of the banks is lowered.

Claims 19.-23. (Canceled).

24. (Original) A control method according to claim 15, further comprising turning on a warning lamp when a deterioration parameter indicative of a degree of deterioration of the actuator becomes larger than a predetermined value.

Claim 25. (Canceled).

26. (Original) A control method according to claim 25, wherein the limiting of the rotational angle of the control shaft comprises varying a holding energy of the actuator for holding the control shaft at a target rotational angle.

27. (Original) A control method according to claim 25, wherein the controlling comprises generating a map for setting a rotational angle limit of the control shaft in accordance with engine speed when the operation responsiveness of the variable valve operating mechanism is lowered.

28. (New) A control system according to claim 2, wherein the controller is programmed to limit the rotational angle of the control shaft on the basis of smaller one of a first control shaft rotational angle limit value and a second control shaft rotational angle limit value that become smaller as a deterioration parameter indicative of deterioration of the actuator becomes larger, the first control shaft being determined based on the deterioration parameter for limiting the holding energy of the actuator, the second control shaft rotational angle limit value being determined based on a control shaft maximum rotational speed and an engine speed for enabling the control shaft to return to a predetermined position upon stop of the engine.

29. (New) A control system for an internal combustion engine having a variable control mechanism which is driven by an electric motor to vary engine performance characteristics, comprising:

- a detecting device which detects an electric energy consumed by the electric motor; and

- a controller programmed to:

- determine a target of the engine performance characteristics in accordance with an engine operating condition;

- control the electric motor so as to achieve the target;

determine whether an operation responsiveness of the variable control mechanism is lowered based on the electric energy for holding actual engine performance characteristics at the target; and
vary the target when the operation responsiveness is lowered.

30. (New) A control system for an internal combustion engine having a variable valve operating mechanism which is driven by an electric motor to vary valve lift characteristics, comprising:

a detecting device which detects an electric energy consumed by the electric motor; and

a controller programmed to:

determine a target of the valve lift characteristics in accordance with an engine operating condition;

control the electric motor so as to achieve the target;

determine whether an operation responsiveness of the variable valve operating mechanism is lowered based on the electric energy for holding actual valve lift characteristics at the target; and

vary the target when the operation responsiveness is lowered.